

IN THE CLAIMS:

Cancel claims 1 to 14, without prejudice.

This listing of claims will replace all prior versions and listings of claims in the application:

1. to 14. (Canceled)

15. (New) A method for determining when to open a nip of a calender comprising at least two elements brought into nip contact with each other, the method comprising:

measuring tension of a web being calendered in the calender at multiple points over a cross-machine width of the web, the tension of the web being measured at at least one of upstream and downstream of the calender with respect to a travel direction of the web;

determining when to open the calender nip based upon the measured web tension, a determination to open the calender nip occurring when, at a preset number of points over the cross-machine width of the web, the measured web tension has fallen below a limit value that is interpreted to indicate damage to the web less than a complete break of the web; and

transmitting an instruction to open the nip of the calender when it is determined, based upon the measured web tension, that the calender nip should be opened.

16. (New) The method of claim 15, further comprising:

selecting reference web tension values for tension of the web measured at a plurality of portions of the web on the cross-machine width of the web;

comparing the measured web tension of the web at the plurality of particular portions of the web to the reference web tension values for the corresponding portions of the web to determine portions of the web where the measured web tension falls below the corresponding reference tension values;

summing the width of the portions of the web where the measured web tension falls below the corresponding reference tension values to obtain a summed damaged width portion of the web; and

determining that the calender nip should be opened when the summed damaged width portion of the web exceeds a preset reference limit value.

17. (New) The method of claim 15, wherein:

selecting reference web tension value for tension of the web;

computing a weighted average of the measured tension of the web obtained at the multiple points of the web over the cross-machine width of the web; and

determining that the calender nip should be opened when the weighted average falls below the reference web tension value.

18. (New) The method of claim 17, wherein a width of an area of the cross-machine width of the web where the web tension is measured is used as a weighing factor in computing the weighted average.

19. (New) The method of claim 15, wherein the tension of the web is measured indirectly by measuring pressure of an air cushion formed between the moving web and a gauging bar, the gauging bar being located in close proximity to the web and having an at least partially arcuate shape in the travel direction of the web.

20. (New) The method of claim 15, further comprising severing the web with the help of an air-jet cutting device when a determination has been made to open the nip of the calender.

21. (New) An apparatus for determining when to open a nip of a calender comprising at least two elements capable of being brought into nip contact with each other, the apparatus comprising:

a gauging device positioned and operable for measuring tension of a web being calendered in the calender at multiple points over a cross-machine width of the web, the gauging device being positioned at at least one of upstream and downstream of the calender with respect to a travel direction of the web; and

a device operating a decision-making algorithm using as an input the web tension measured by the gauging device, the decision making algorithm determining to transmit an instruction to open the nip of the calender when the web tension measured at a preset number of points over the cross-machine width of the web has fallen below a limit value interpreted to indicate damage to the web less than a complete break of the web.

22. (New) The apparatus of claim 21, wherein the gauging device is positioned upstream of the calender.

23. (New) The apparatus of claim 21, wherein the gauging device is positioned downstream of the calender.

24. (New) The apparatus of claim 21, wherein the gauging device is a gauging bar shaped to have an at least partially arcuate surface in the travel direction of the web and has pressure sensors at holes formed thereon.

25. (New) The apparatus of claim 21, further comprising an air-jet cutting device positioned and operable to sever the web when the device operating a decision-making algorithm has transmitted the instruction to open the nip of the calender.

26. (New) The apparatus of claim 25, wherein the air-jet cutting device is positioned upstream of the calender.

27. (New) The apparatus of claim 25, wherein said air-jet cutting device is integrated with the gauging device.

28. (New) A method for detecting damage occurring in a web being calendered comprising:

measuring tension of a web being calendered in a calender at multiple points over a cross-machine width of the web, the tension of the web being measured at at least one of upstream and downstream of the calender with respect to a travel direction of the web;

determining that damage to the web is present when the measured web tension at a preset number of points over the cross-machine width of the web has fallen below a limit value that is interpreted to indicate damage to the web less than a complete break of the web requiring opening of a nip of the calender.